

# METHOD FOR FORMING SUSPENDED TRANSMISSION LINE STRUCTURES IN BACK END OF LINE PROCESSING

## Abstract

A method for forming a transmission line structure for a semiconductor device includes forming an interlevel dielectric layer over a first metallization level, removing a portion of the interlevel dielectric layer and forming a sacrificial material within one or more voids created by the removal of the portion of the interlevel dielectric layer. A signal transmission line is formed in a second metallization level formed over the interlevel dielectric layer, the signal transmission line being disposed over the sacrificial material. A portion of dielectric material included within the second metallization level is removed so as to expose the sacrificial material, wherein a portion of the sacrificial material is exposed through a plurality of access holes formed through the signal transmission line. The sacrificial material is removed so as to create an air gap beneath the signal transmission line.